

1. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT PARTS OF BS EN 752 'DRAINS AND SEWER SYSTEMS OUTSIDE BUILDINGS', THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS.

2. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

3. ALL EXISTING DRAINAGE/STRUCTURES TO BE ABANDONED SHALL BE BROKEN OUT AND REMOVED FROM SITE. THE EXCAVATION SHALL BE BACKFILLED WITH A SUITABLE GRANULAR MATERIAL TO THE REQUIRED LEVEL. ALTERNATIVELY, DEEP DRAINS MAY BE CLEANED AND GROUTED WITH A 1:10 CEMENTITIOUS GROUT, WITH STRUCTURES BROKEN DOWN 1m BS GW FINISHED GROUND LEVEL AND BACKFILLED WITH A SUITABLE GRANULAR MATERIAL.

4. ALL PIPES UP TO AND INCLUDING 3000 TO BE VITRIFIED CLAY OR uPVC. PIPES 3750 AND GREATER TO BE CONCRETE CLASS 120.

5. ALL EXTERNAL RIGID PIPEWORK SHALL BE LAID WITH A CLASS S PIPE BEDDING DETAIL WITH 1.2m MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9m COVER UNDER FIELDS AND 0.6m COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED, A CLASS S PIPE BEDDING DETAIL SHALL BE USED ON PIPES 2250 AND LARGER, FOR PIPES LESS THAN 2250 USE A CLASS 2 PIPE BEDDING DETAIL. UNDER BUILDINGS A CLASS S PIPE BEDDING DETAIL SHALL BE USED. WHERE THERE IS LESS THAN 300mm BETWEEN THE BARREL OF THE PIPE AND THE UNDERSIDE OF THE STRUCTURAL FLOOR SLAB, THE PIPE SHALL BE CAST INTEGRAL WITH THE FLOOR SLAB WITH 150mm MINIMUM CONCRETE SURROUND WITH VERTICAL REINFORCEMENT TIED INTO THE SLAB.

6. ALL uPVC PIPEWORK SHALL BE LAID WITH A CLASS T PIPE BEDDING DETAIL WITH 1.2m MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9m COVER UNDER FIELDS AND 0.6m COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED, A CLASS Q PIPE BEDDING DETAIL SHALL BE USED.

7. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.

8. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUNOFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.

9. THE NEED FOR ANY TEMPORARY LAND DRAINAGE SHALL BE ASSESSED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING. THESE TEMPORARY WORKS SHALL TAKE INTO ACCOUNT THE PHASING OF THE WORKS AND THE CONTRACTORS METHOD OF WORKING. NO LAND DRAINAGE, TEMPORARY OR OTHERWISE, SHALL BE PERMITTED TO DISCONTINUE THE PERMANENT DRAINAGE SYSTEM OR DIRECTLY ONTO THE PUBLIC HIGHWAY.

10. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

11. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN NEAR CONFINED SPACES, DEEP EXCAVATIONS, LIVE SEWERS AND MACHINERY.

12. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.

13. ALL PIPES SHALL BE LAID WITH SOFFITS LEVEL AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUTLET PIPE (UNLESS OTHERWISE SHOWN). ALL PIPE RUNS SHALL BE LAID TO THE LEVELS INDICATED. ALL PIPE GRADIENTS INDICATED ARE APPROXIMATE.

14. ALL RAINWATER PIPES/INTERNAL FOUL DRAIN CONNECTIONS ARE SHOWN INDICATIVELY OR TO THE LATEST ARCHITECTS DRAWINGS. ADAPTORS AT FINISHED FLOOR LEVEL TO SUIT CONNECTION DETAILS BY OTHERS. POSITION OF RAIN WATER PIPES AND WASTE OUTLETS MUST BE CONFIRMED FROM ARCHITECTS DRAWING BEFORE LAYING UNDERGROUND PIPES/WORK.

15. ALL INTERNAL, BELOW GROUND FOUL DRAINAGE IS TO BE LAID IN ACCORDANCE WITH THE BUILDING REGULATIONS H1 SECTION 2.3/CLAUSE 2.34/TABLE 6.

16. ALL BELOW GROUND PLASTIC/GRP TANKS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. THEY SHALL BE PROVIDED WITH SUFFICIENT CONCRETE SURROUND TO COUNTER FLOATION AND SHALL HAVE A WALL THICKNESS ADEQUATE TO RESIST THE HIGHEST GROUND WATER LEVEL, WHICH COULD BE ENCOUNTERED AT THEIR LOCATION.

17. ALL INSITU AND PRECAST CONCRETE PRODUCTS SHALL BE DESIGNED TO SUIT THE GROUND CONDITIONS IDENTIFIED IN THE SITE INVESTIGATION REPORT AND IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2007) PART 1, TABLE 2.

18. ALL PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. ALL PRECAST CONCRETE PIPES SHALL BE CLASS 120 AND COMPLY WITH THE REQUIREMENTS OF NOTE 17 ABOVE.

19. ALL VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 286 AND BS 85 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 85 OR EQUIVALENT BS EN 286 PIPE CRUSHING STRENGTH AND BE OF A SLEEVED SYSTEM.

20. ALL uPVC PIPES AND FITTINGS SHALL BE KITEMARKED.

21. WHERE CONCRETE PROTECTION IS REQUIRED TO PREWORK, THE CONCRETE SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION OF THE CONCRETE BY MEANS OF A SHAPED COMPRESSIBLE FILLER.

22. WHERE TWO PIPELINES CROSS WITH LESS THAN 300mm COVER, SURROUND EACH PIPE WITH A FULL CONCRETE BED AND SURROUND CLASS S DETAIL FOR NOT LESS THAN 1m CENTRED ON THE CROSSING AND EXTENDED AS REQUIRED TO WITHIN 150mm OF THE NEAREST FLEXIBLE JOINT.

23. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE BARREL/CROWN OF THE PIPE.

24. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS & CONTAMINATED MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE HARD GRANULAR MATERIAL SHALL BE USED.

25. GENERAL BACKFILL TO DRAINAGE TRENCHES IN VEHICULAR TRAFFICKED AREAS ABOVE THE PIPE BEDDING DETAIL, SHALL BE SUITABLY SELECTED MATERIAL, IN ACCORDANCE WITH BS EN 752) AND BE PLACED IN LAYERS NOT EXCEEDING 225mm. EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL. SHOULD THE MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.

26. ALL TRENCH BACKFILL TO BE COMPACTED IN ACCORDANCE CLAUSE 612 OF THE SPECIFICATION FOR HIGHWAY WORKS (SHW) SERIES 800. METHOD OF COMPACTION SHALL BE BASED ON THE MATERIAL BEING PLACED AND SHALL BE CLASSIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 614. MATERIAL TO BE PLACED AND COMPACTED USING METHOD COMPACTION WITH LAYER THICKNESS AND NUMBER OF PASSES SELECTED USING TABLE 614.

27. ALL EXCAVATIONS IN AREAS OF HIGH WATER TABLES AND GRANULAR MATERIALS WITH HIGH SAND/SILT CONTENTS SHALL BE WRAPPED WITH A SUITABLE GEOTECHNICAL FILTER MEMBRANE TO PREVENT MIGRATION OF SANDS/SILTS. FULL HEIGHT CLAY STAKES ACROSS TRENCHES AND/OR AT MANHOLE LOCATIONS AT 25m INTERVALS TO RESTRICT WATER MOVEMENT ALONG THE EXCAVATION.

28. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM. THE CONTRACTOR SHALL CARRY OUT A COLOUR CCTV SURVEY OF ALL THE DRAINAGE SYSTEMS WITHIN THE AREA OF THE WORKS AND PROVIDE THE ENGINEER WITH TWO COPIES OF THE CCTV ON CD (MPRG - FORM 41) AND REPORT TO WRG STANDARD.

29. GEOTEXTILE FABRIC TO BE WRAPPED AROUND GRANULAR PIPE BEDDING WHERE SEWER TRENCHES ARE FORMED IN RUNNING SAND/SILT MATERIAL, WHERE THERE IS A RISK OF FINE MATERIAL ENTERING THE VOIDED GRANULAR BEDDING. IN THESE CONDITIONS THE GEOTEXTILE IS TO BE EXTENDED UNDER THE MANHOLE BASES.

30. WHERE UTILITY/LAND DRAINAGE TRENCHES ETC CROSS OVER DRAINAGE TRENCHES, THE CONTRACTOR SHALL CONSTRUCT AN IMPERMEABLE BARRIER TO PREVENT GROUNDWATER INFILTRATING INTO THE DRAINAGE TRENCH.

31. DESIGN ASSUMES A GRAVITY CONNECTION FOR FOUL AND SURFACE WATER SYSTEMS IS POSSIBLE. IF THE EXISTING SEWERS ARE NOT DEEP ENOUGH THEN PUMP STATIONS WILL BE REQUIRED.

32. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 214. HAVE 400000 CLEAR OPENINGS UNLESS OTHERWISE SPECIFIED AND BE OF NON-ROCKING DESIGN WITHOUT CUSHION INSERTS AND BE KITEMARKED. LOAD CLASS D400 IN TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS, LANDSCAPED AND PEDESTRIAN AREAS. WHERE REQUIRED, COVERS SHALL BE RECESSED TO RECEIVE THE ARCHITECTS SPECIFIED FINISH.

33. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 IN INDUSTRIAL ESTATE ROADS AND AREAS CARRYING REGULAR HEAVY TRAFFIC AND LOAD CLASS C250 IN ESTATE ROADS AND CAR PARKING AREAS. IN ALL ROAD LOCATIONS, THE GRATE SHALL BE HINGED ON THE SIDE OF THE TRAFFIC DIRECTION (LEFT HAND OPENING).

34. ALL PRIVATE GULLY'S TO BE TRAPPED PCC POTS, 3750 X 915 DEEP WITH 1500 OUTLETS UNLESS NOTED OTHERWISE.

35. ALL LINEAR DRAINAGE CHANNELS TO HAVE TRAPPED OUTLETS, WITH 1500 OUTLETS UNLESS NOTED OTHERWISE. ALLOWANCE SHOULD BE MADE FOR ACCESS/RODDING POINTS AT EACH END OF THE DRAINAGE CHANNEL RUN.

36. ALL WORKS ARE ASSUMED TO BE WITHIN PUBLIC HIGHWAY OR WITHIN LAND OWNERS LANDS & NO WORKS ARE REQUIRED ON THIRD PARTY LAND OWNERS PROPERTY.

37. ALL BELOW GROUND FOUL WATER DRAINAGE AND RWPS TO BE 1000 UNLESS NOTED OTHERWISE. ALL DRAINAGE CHANNEL & GULLY CONNECTIONS TO BE 1500 (UNLESS NOTED OTHERWISE). ALL ITEMS TO BE RODDABLE AT LOCATIONS ABOVE GROUND LEVEL.

38. ALL SWRP's, RWPS AND DRAINAGE POP-UPS ARE SHOWN INDICATIVELY AND BASED ON THE LATEST ARCHITECTS LAYOUT DRAWINGS. ALL LOCATIONS SHALL BE CONFIRMED BY THE ARCHITECT AND/OR M&E ENGINEER.

39. PROPOSED COVER LEVELS ON THIS DRAWING ARE INDICATIVE ONLY. THE CONTRACTOR SHALL CONFIRM ALL LEVELS INDICATED ARE CORRECT AND REPORT ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

40. ALL POLYPROPYLENE INSPECTION CHAMBERS (PICS) TO BE 4500 & ALL PRECAST CONCRETE CHAMBERS ARE 10000. (UNLESS NOTED OTHERWISE).

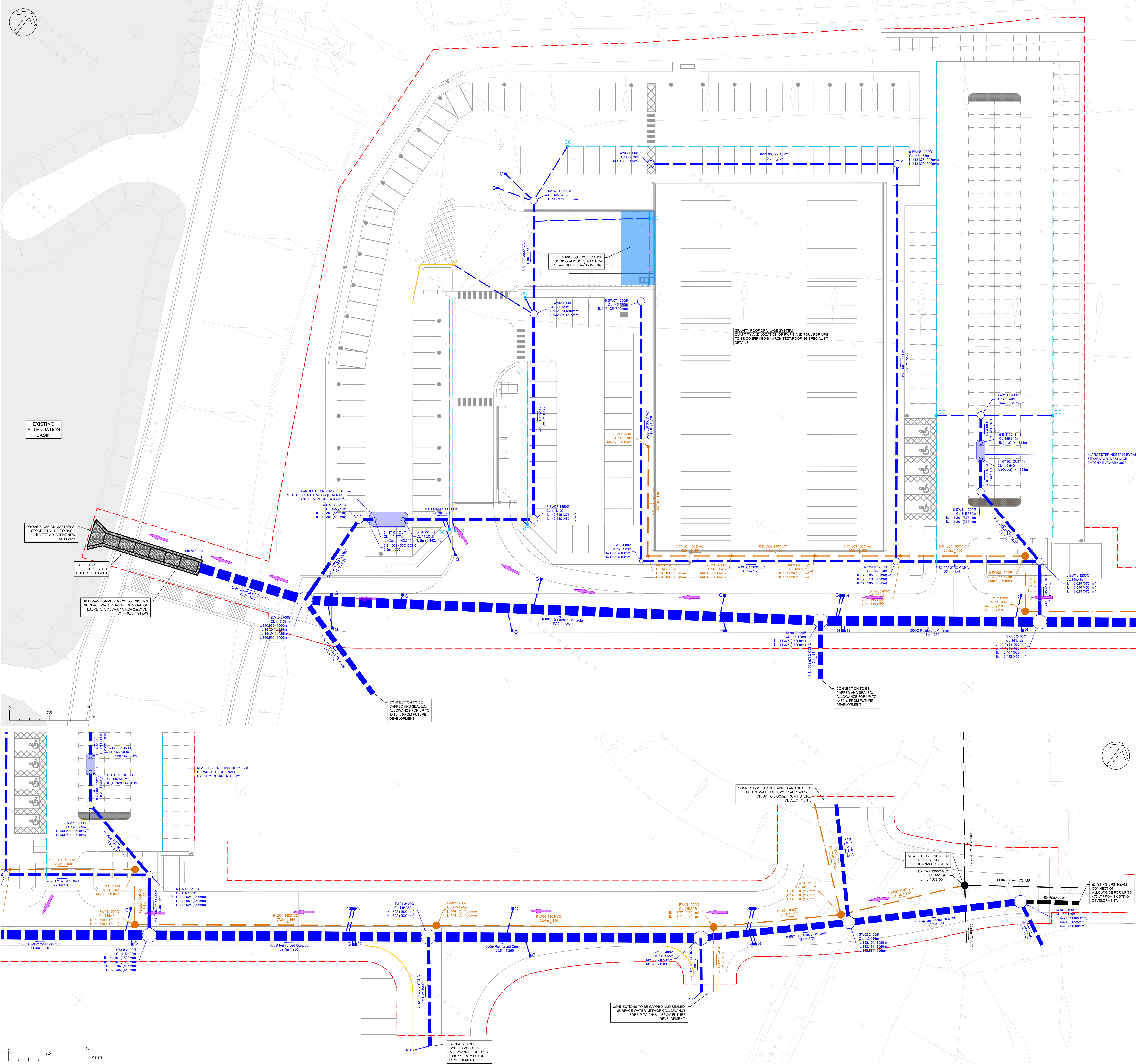
41. ALL WORKS WITHIN THE PUBLIC HIGHWAY TO BE REINSTATE TO HIGHWAY AUTHORITY REQUIREMENTS.

42. THE CONTRACTOR MUST MAKE PUBLIC SEWER CONNECTION ONLY LOCATION TO RELEVANT WATER AUTHORITY PRIOR TO MAKING CONNECTION, WHEN IF REQUIRED. THE CONTRACTOR SHALL ALSO ALLOW FOR ANY FEES REQUIRED IN CONNECTION WITH ROAD AND SEWER OPENING PERMITS.

43. ALL KERB DRAINAGE & DRAINAGE CHANNELS TO BE DESIGNED BY SPECIALIST SUB-CONTRACTOR.

44. ALL MANHOLES LESS THAN 1.5m DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL.

45. NO DEEP ROOTING TREES / VEGETATION SHOULD BE PLANTED WITHIN 5m OF ANY DRAINAGE WORKS.



THIS DRAWING SHOULD NOT BE SCALED. DIMENSIONS TO BE VERIFIED ON SITE. ANY DISCREPANCIES SHOULD BE REFERRED TO THE ENGINEER PRIOR TO WORK COMMENCING.

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT HJCE, ARCHITECTS AND M&E ENGINEERS' DRAWINGS AND SPECIFICATIONS.
- DRAWING NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.
- EXISTING GROUND LEVELS BASED ON A TOPOGRAHICAL SURVEY BY ELLAM SURVEYS LTD REF 9141_2011 - SEPT 2025.
- PLOT BOUNDARIES, BUILDING AND EXTERNAL WORKS FOOTPRINTS SHOWN ON THIS DRAWING ARE INDICATIVE ONLY. BASED ON THE LATEST MASTERPLAN DRAWING.
- ALL DRAINAGE CHANNELS SHALL BE PROVIDED WITH A RODDABLE ACCESS COVER AT THE UPSTREAM END AND A OUTFALL UNIT WITH SILT COLLECTION. LOAD CLASS TO BE F800 TO SERVICE YARD AND C250 TO CAR PARK. CHANNELS INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. CHANNELS TO BE BIRCO LINEAR DRAINAGE SYSTEM BY MARSHALLS OR GATIC LINEAR DRAINAGE SYSTEM. DRAINAGE TO SERVICE YARD TO BE GATIC HEAVY DUTY LINEAR DRAINAGE SYSTEM.
- FULL RETENTION/BYPASS SEPARATORS TO BE PROVIDED WITH OIL LEVELS MONITORS AND VISUAL ALARMS.
- ALL INTERNAL MANHOLES TO HAVE DOUBLE SEALED/RECESSED & LOCKABLE TYPE COVERS.
- ON COMPLETION OF THE WORKS INCLUDING ANY DEFECTS RECTIFICATION, ALL DRAINS ARE TO BE SURVEYED USING A CCTV SYSTEM.
- DRAINAGE CHANNELS TO BE SLOT TYPE OR WITH INTEGRAL COVERS TO ELIMINATE THE RISK OF DISLODGING WHERE IN REGULARLY TRAFFICKED AREAS) AND PROVIDED WITH E600/F900 SYSTEMS COVERS INS IN AREAS WITH HGV ACCESS OR AREAS OF HIGH TRAFFIC.

DRAINAGE KEY:

- PROPOSED SURFACE WATER DRAIN
- PROPOSED S.W. MANHOLE/PIC
- PROPOSED RODDING EYE
- PROPOSED DRAINAGE CHANNEL
- PROPOSED ROAD GULLY
- PROPOSED RAINWATER PIPE
- PROPOSED SPHONX RAINWATER PIPE
- PROPOSED KERB DRAIN OUTLET
- PROPOSED CHANNEL OUTLET CHAMBER
- PROPOSED FOUL WATER DRAIN
- PROPOSED FOUL WATER MANHOLE/PIC
- PROPOSED BACKDROP CONNECTION
- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- PROPOSED KERB DRAIN
- SITE BOUNDARY
- FLOOD ROUTING IN AN EXCEEDANCE EVENT (GREATER THAN 1:100 AFD CO)
- PERMEABLE PAVING

REV	DATE	DESCRIPTION	DM	AF
P03	27.03.26	UPDATED TO REDUCE MANHOLES IN HEAVY TRAFFICKED AREAS	AF	MH
P02	14.11.25	DRAINAGE TO CAR PARK UPDATED	AF	DM
P01	08.10.25	INITIAL ISSUE	DM	AF

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PROJECT
UNIT 7 - GATEWAY 36, ROCKINGHAM, BARNSELY

TITLE
DRAINAGE LAYOUT

CLIENT
HARWORTH GROUP

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STATUS			
PRELIMINARY			
DRAWN BY	CHECKED BY	APPROVED BY	DATE
DM	AF	AF	08.10.25
HJCE REF:		SCALES @ A0	
7241		1:250	
PROJECT - ORIGINATOR - VOLUME - LEVEL - TYPE - ROLE - NUMBER		REVISION	
7241-HJCE-00-XX-DR-C-3000		P03	